

Tropical nematodes of rare genera (Dorylaimida)

By

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Abstract. Six new and a known nematode species all representing rare genera of the order Dorylaimida are described from Peru, Bolivia and New Guinea. They are: *Bagriella pentecostes* (Qudsianematidae), *Actinolaimoides peruvianus*, *Oriverutus maturitatis* (Nordiidae), *Hulqus papuanus*, *Falcihasta monticola*, *Falcihasta silvicola* spp. n. and *Falcihasta tropica* YEATES, 1973 (Swangeriidae). A new combination, *Malekus hastatus* (ANDRÁSSY, 1963), is proposed.

Of the orders of the nematodes, Dorylaimida is the second richest in species. Not less than two thousand species belong to this group, what means that one-third of the free-living continental nematodes are dorylaims. Their genera, some 200 in number, are in part also abundant in representatives: dozens of species can be counted in them, and there are even genera that comprise one hundred species or so (*Mesodorylaimus*, *Eudorylaimus*). On the other hand, several genera of Dorylaimida include species in restricted number, or are quite monotypic. Many of these generic groups are very scarce — they are, however, for that very reason always welcome under microscope!

In the present paper a few infrequent dorylaimid genera are presented: *Bagriella* AHMAD & JAIRAJPIRI, 1989, *Actinolaimoides* MICOLETZKY, 1925, *Oriverutus* SIDDIQI, 1971, *Hulqus* SIDDIQI, 1982 and *Falcihasta* CLARK, 1964. Seven species are described; one is already known but not observed since its description, and six proved to be new to science. All of them originated from the tropics of the Southern Hemisphere.

Bagriella pentecostes sp. n.

(Fig. 1 A—E)

♀: L=0.84—0.96 mm; a=34—36; b=3.2—3.4; c=13—14; V=47—50%; c'=4.5—5.

Body slender, C-shaped when fixed, at proximal end of oesophagus 21—24 µm, at middle of body 24—29 µm, at anal region 13—16 µm wide. Cuticle thin, 1 µm

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or so, hardly thicker on tail; smooth. Lip region 10–12 μm wide and 4–5 μm high, *Labronemella*-like, well offset by constriction. Lips separated, large, somewhat ear-like, surrounding small sunken inner liplets. Body at posterior end of oesophagus twice as wide as head. Amphids large, about one-half the corresponding body width, caliciform.

Mouth spear (or odontostyle) rather weak, 8–9 μm , somewhat shorter than labial diameter, merely 3% of oesophagus length, nearly as thick as cuticle, weakly sclerotized; aperture 1/5–1/6 of spear length. Guiding ring thin, at the anterior fourth/fifth of spear.

Oesophagus 257–284 μm long, in 58–61% expanded, its anterior slimmer part weakly muscular. Cylindrus* 100–120 μm long, muscular with conspicuous nuclei. Dorsal nucleus a little more posterior than usual in the Dorylaimida, medial subventral nuclei at different level (the posterior located somewhat behind the middle of cylindrus), posterior subventral nuclei one and a half cylindrus-widths from oesophagus end, levelling with one another. Distance between posterior end of oesophagus and vulva 0.6 times as long as oesophagus. Cardia small, globular, connected with three glands. Prerectum 2.5–3, rectum 1.3–1.5 anal-widths long.

Female genital organ amphidelphic. Vulva a transverse slit, 160–166 μm or 6–6.8 body diameters from oesophagus. Vagina 12–14 μm , half a body-width long, cylindroid with well sclerotized lips. Anterior gonad on the left, posterior on the right side of intestine, each 3–4.5 body diameters long. Eggs 93–100 x 20–21 μm , 3.3–3.5 times as long as body width; one in the same time.

Distance vulva–anus 5.7–6.2 times as long as tail. Tail 60–76 μm , 4.5–5 anal-widths long, or 7–8% of body length, elongate-conoid, C-shaped, ventrally bent, uniformly tapering to the finely rounded terminus.

Male not found.

The genus *Bagriella* was proposed by AHMAD and JAIRAJPURI for the species *B. qaiseri* AHMAD & JAIRAJPURI, 1989. In the very characteristic labial region it resembles *Labronemella* ANDRÁSSY, 1985 but the stylet is smaller and slimmer, the cardia provided with glands and the tail conoid, elongate (not short and rounded). The type-species was described from India; no other species had been found later.

The present, second species of *Bagriella* well corresponds in the shape of head, weakness of spear, arrangement of oesophageal nuclei, presence of cardial glands and structure of female gonad to *qaiseri* but it can be very easily distinguished from that by the longer (4.5–5 vs. 2.3–3 anal diameters) and strongly ventrally curved — not straight — tail. Besides, it has a more slender body, a shorter spear (8–9 vs. 12–12.5 μm) and an other-shaped vagina.

Holotype: ♀ on the slide No. 10849. Paratypes: 1 ♀, 2 juveniles.

Type locality: Peru, Pucallpa, humus around bamboo roots in a rain-forest, November, 1971; leg. J. BALOGH.

The species name is derived from the Greek/Latin word “*pentecoste*” (the Whitsun); the author was describing this nematode in Whitsuntide...

*The widened — medial or terminal — part of the oesophagus in the subclasses Torquentia and Secernentia is generally named “*bulbus*”. To distinguish and determine the expanded region of oesophagus in the Dorylaimida, I suggest the Latin term “*cylindrus*” (a cylinder) since that posterior portion of oesophagus is practically always cylindrical at dorylaims.

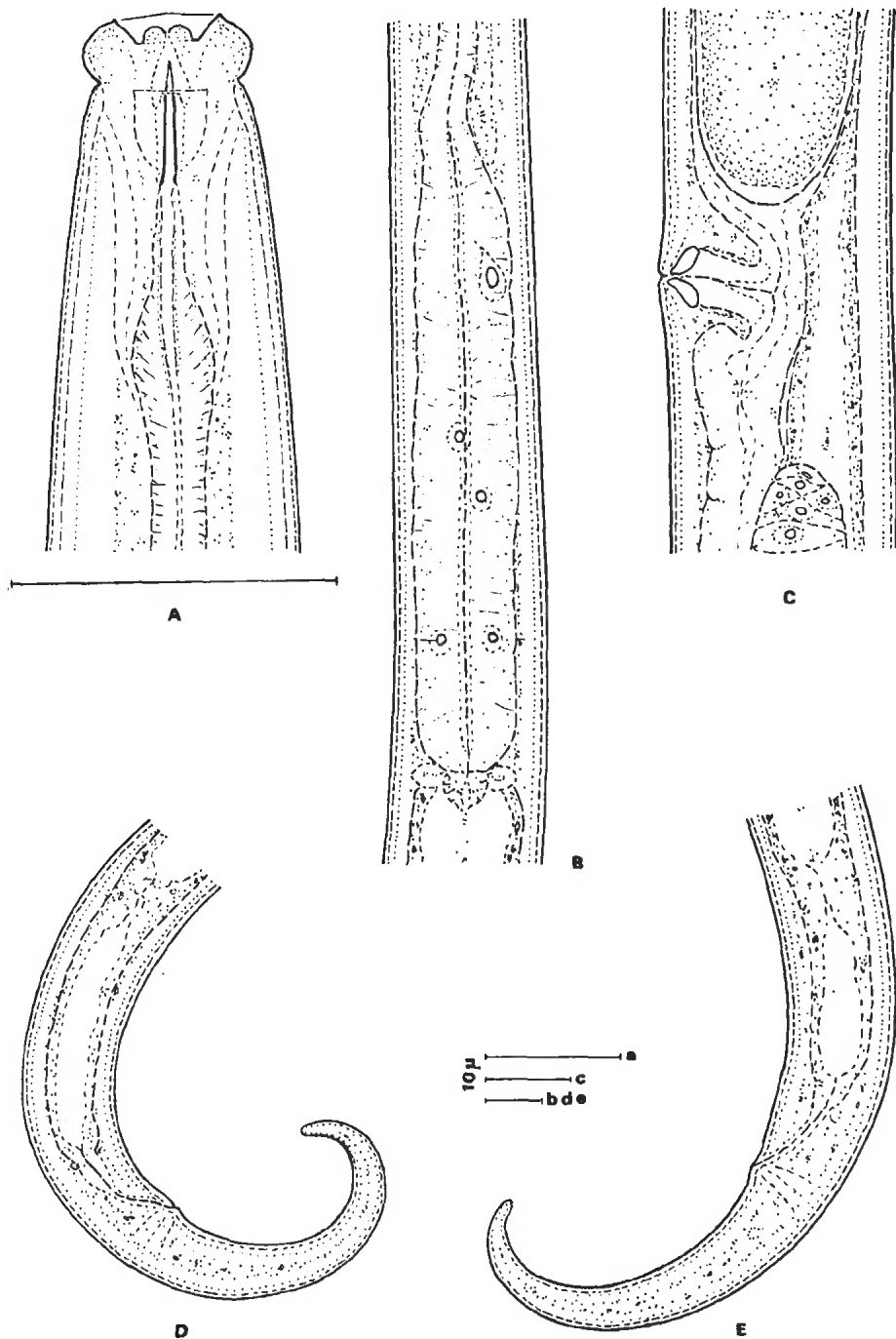


Fig. 1. *Baqriella pentecostes* sp. n. A: anterior end, and body width at posterior end of oesophagus; B: cylindrus; C: vulval region; D—E: tails of females

Actinolaimoides peruvianus sp. n.

(Fig. 2 A—D)

♀: L=0.64—0.67mm; a=34—36; b=3.9—4.0; c=8.8—9.1; V=38—39%; c'=6—6.3.

Body slender, at posterior end of oesophagus 16 µm, at mid-body 18—19 µm, at anal region 12 µm wide, slightly bent ventrally after fixation. Cuticle thin, hardly 1 µm on the most part of body, somewhat thicker on tail; smooth. Labial region rounded, hardly separated from neck, narrow, 5 µm wide; lips amalgamated, papillae very small. Body at posterior end of oesophagus 4 times as wide as head. Amphids caliciform, 1/2 corresponding body width.

Spear very slender, slimmer than cuticle, 16 µm or 3 head diameters long, 10% of oesophagus length, with small indistinct aperture. Odontophore shorter than spear. Guiding ring simple, far from head, about one and a half head diameters from labial margin, at the middle of spear.

Oesophagus 160—166 µm long, about twice as long as the distance between its posterior end and vulva, in 67% expanded. Cylindrus 54 µm long, hardly threefold body diameters. Dorsal nucleus moderately developed, members of both subventral pairs of nuclei levelling with one another; anterior pair located a little before the middle of cylindrus, posterior pair one cylindrus-width before the oesophagus terminus. Cardia small, somewhat mammiform. Prerectum 3.5—3.8, rectum 1.8 anal body-widths long. Posterior half of intestine green in colour; the species of this genus are in all probability algae- vorous.

Female genital organ mono-opisthodelphic. Vulva an open slit, vagina 9 µm long, half the corresponding body-width, thick pear-shaped without sclerotized lips. A very short anterior uterine sack is present; it is shorter than the half body diameter. Posterior part of gonad 4 body-widths long or 12% of total body length. Eggs were not observed.

Distance vulva—anus 4.5—4.6 times as long as tail. Tail 70—75 µm, 6—6.3 anal body-widths long, 11% of body length, elongate-conoid, tapering uniformly to the acute tip, first slightly ventrad then dorsad bent.

Male unknown.

The genus *Actinolaimoides* has been considered erroneously by MEYL (1957) a member of the Actinolaimoidea. Not he but MICOLETZKY (1925), the author of the type-species, had a finger in the pie when he wrongly illustrated the stoma as showing actinolaimid character with longitudinal ridges. SIDDIQI (1982) stated this after studying the type specimens of *A. tobleri*. He pointed to that MICOLETZKY's genus was one and the same as *Enchodelium* ANDRÁSSY, 1963, and that the former had a priority of the latter.

Three species have been considered to belong to *Actinolaimoides*: *A. tobleri* (MICOLETZKY, 1925) MEYL, 1957, *A. angolensis* (ANDRÁSSY, 1963) SIDDIQI, 1982 and *A. thornei* (BAQRI & JAIRAJ PURI, 1975) SIDDIQI, 1982. *Actinolaimoides peruvianus* sp. n. comes closest to *A. thornei* in the shape of tail but it can be distinguished from that, and from the other two species as well, in having a comparatively very long spear (16 µm, 3 head diameter vs. 10—11 µm, 1—1.5 head diameters at the three older species) and a more posteriorly located vulva (4 body-widths vs. 2—2.5 body widths from posterior end of oesophagus).

The *Actinolaimoides* species are distributed in Africa (Angola), Asia (India), Central- and South America (Trinidad, Peru).

Holotype: ♀ on the slide No. 10840. Paratypes: 1 ♀, 1 juvenile.

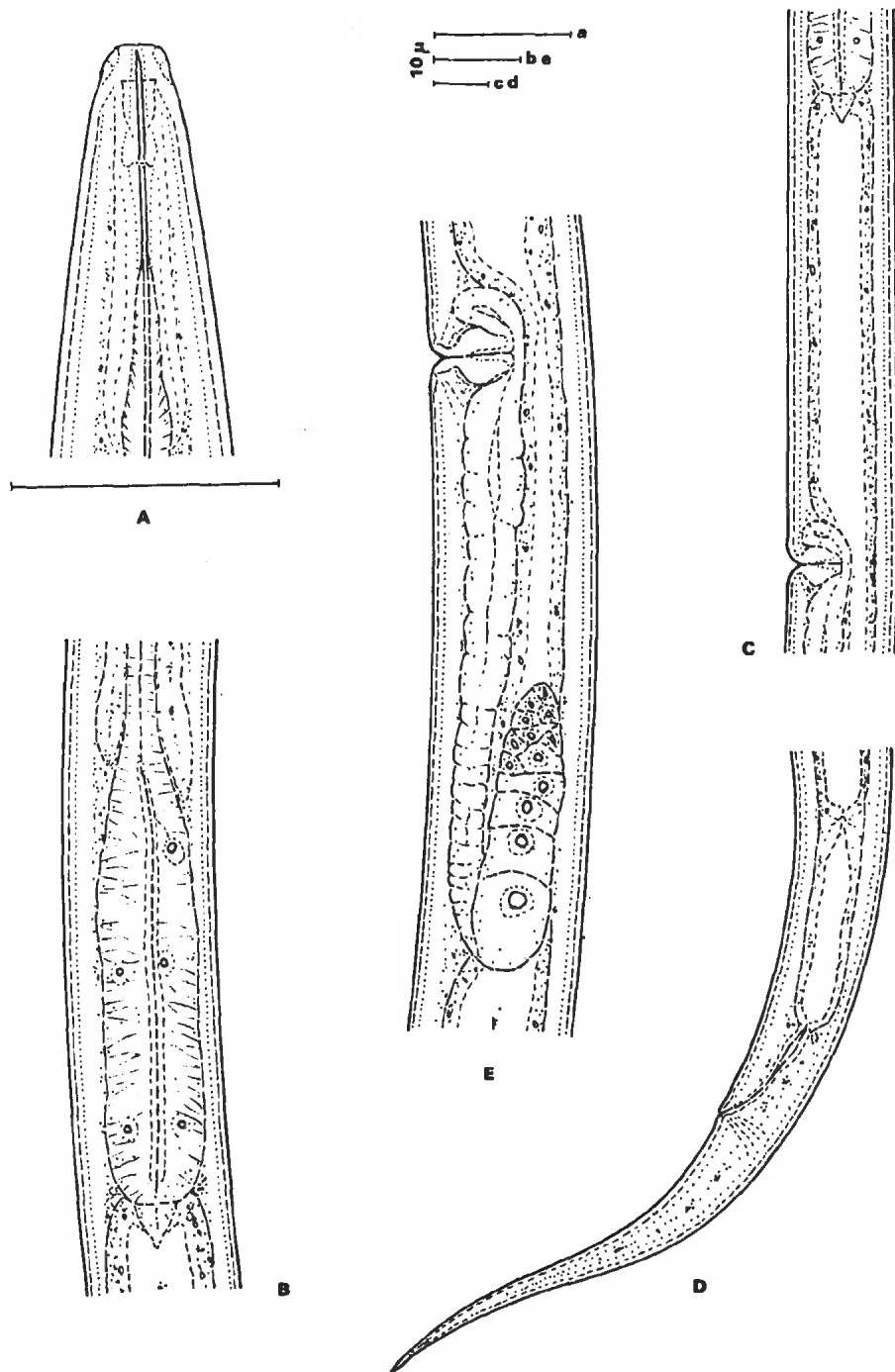


Fig. 2. *Actinolaimoides peruvianus* sp. n. A: anterior end, and body width at proximal end of oesophagus; B: cylindrus; C: body portion between oesophagus and vulva; D female tail

Type locality: Peru, Pucallpa, rain-forest, wet moss from a rock, November, 1971; leg. J. BALOGH.

Oriverutus maturitalis sp. n.

(Fig. 3 A—G)

♀: L=0.81—0.91 mm; a=26—28; b=3.4—3.8; c=17—20; V=46—49%; c'=2.5—3.3.

Body moderately slender, mostly C-shaped after fixation, 30—34 µm wide at mid-region. Cuticle smooth and thin, about 1.5 µm thick, on tail slightly thicker. Labial region offset by constriction, 9.5—10.5 µm wide, distinctly wider than neck region. Lips well separated, large with prominent papillae. Labial field somewhat protruding, disc-like. Amphids unusually large, practically as wide as corresponding body diameter, cup-shaped.

Spear slender, 13—14 µm long, 1.4 times labial width or 5—6% of oesophagus length, aperture short, 1/5—1/6 of spear length. Odontophore longer than odontostyle. Guiding ring quite thin, at the anterior third of spear.

Oesophagus 230—240 µm long, distance between posterior end of oesophagus and vulva 0.7—0.8 times oesophagus length. In 53—56% widened; anterior portion comparatively well muscular, cylindrus 105—115 µm. Nuclei conspicuous: dorsal nucleus small but distinct, about one cylindrus-width from the beginning of cylindrus: first subventral nuclei at different level (the posterior in the middle of cylindrus or a little behind that), second subventral nuclei at the same level, one cylindrus-width from cardia. Cardia conoid-mammiform with three indistinct glands. Prerectum and rectum equal in length, 1.8—2.2 anal diameters long.

Female gonads paired, symmetrical, anterior gonad 3—4, posterior 3.9—4.8 body diameters long. Vulva transverse, somewhat sunken in body contour, vagina 15—17 µm, as long as 1/2 body width, provided with elongate-triangular sclerotized pieces. Anterior ovary on the left, posterior on the right side of intestine, both recurved to the vulva. Eggs 63—70 x 23—24 µm, two body-widths long. Vulva located 5—6 body diameters posterior to oesophagus terminus.

Distance vulva—anus 7.7—9.7 times as long as tail. The latter 42—50 µm, 2.5—3.3 anal diameters long, 5—6% of entire length of body, conical with pointed tip, either straight or slightly bent ventrally then dorsally. Two pairs of small sublateral papillae present on tail.

Male not found.

Though 14 species can be ordered in the genus *Oriverutus* SIDDIQI, 1971, they are rather infrequent and known only from Asia (India) and Africa (Niger, Mauritius). On the basis of the female genital apparatus the members of the genus may be divided into two groups: amphidelphic and monodelphic species (7 each). It is remarkable that ones showing paired gonads have been detected only from India hitherto.

Oriverutus maturitalis sp. n. belongs to the amphidelphic group and shows a relationship to the species having a straight or slightly S-formed tail (the tail is arcuate, ventrad curved at the other species). They are: *hastus* AHMAD & JAIRAJPURI, 1982, *labiatus* AHMAD & JAIRAJPURI, 1987, *mammillatus* DAREKAR & KHAN, 1981 and *parangulatus* BAQRI, 1991. The new species differs from all of them in the shape of head (*hastus*: head narrow, not offset by a constriction with hardly separated lips; *labiatus*, *mammillatus* and *parangulatus*: lips lobe- or ear-like with unusually

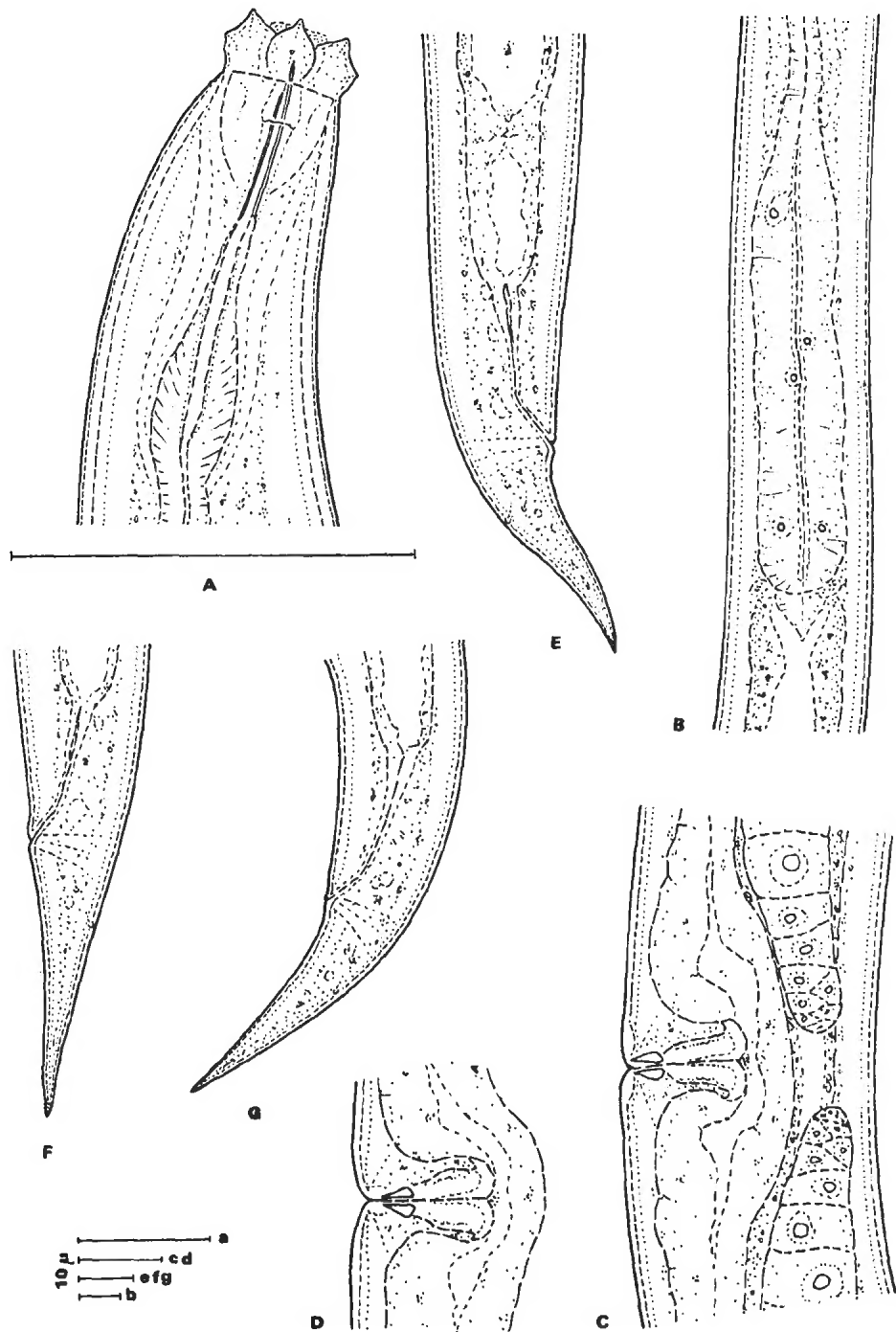


Fig. 3. *Oriverutus maturitatis* sp. n. A: anterior end, and body width at proximal end of oesophagus; B: cylindrus; C—D: vulval regions; E—G: tails of different females

developed papillae), in the structure of vagina (sclerotized pieces very conspicuous and characteristic in form) and in the long rectum (this latter is about equal in length with the anal body-width in the other four species).

In shape of the head, spear and tail the genus *Malekus* THORNE, 1974 comes close to *Oriverutus*, the very thin, needle-like spear with obscure aperture and the not sclerotized vaginal lips differentiate it from the latter. *Malekus* has been described as a monotypic genus. I think, however, that beside the type species, *M. acridens* THORNE, 1974, another species may be considered to belong here. Under the name *Eudorylaimus hastatus* ANDRÁSSY, 1963 I described a nematode from Angola which was transferred by JAIRAJPURI and HOOPER (1969) to *Longidorella*, then by SIDDIQI (1971) to *Oriverutus*. Since the shape of the spear and the vagina is common in both species, *hastatus* is considered here a congener of *acridens*: *Malekus hastatus* (ANDRÁSSY, 1963) comb. n.

Holotype: ♀ on the slide No. 11328. Paratypes: 7 ♀.

Type locality: Bolivia, Alcoche, Prov. La Paz, 600 m above sea level, fallen leaves from a secondary rain-forest, December, 1966; leg. J. BALOGH, A. MAHUNKA and A. ZICSI.

Hulqus papuanus sp. n.

(Fig. 4 A—G)

♀: L=1.02—1.10 mm; a=33—39; b=2.6—3.0; c=8.8—11; V=37—45%; c'=5—7.

Body slender, 26—33 µm wide in mid-region. Cuticle thin, about 1 µm, on tail thicker; smooth. Labial region leptonchid, on the whole conoid, offset by slight depression, 8—9 µm wide. Anterior papillae close to mouth opening. Body at proximal end of oesophagus 3.3—3.6 times as wide as head. Amphids elongate-calliciform, not wider than 1/3 corresponding body diameter.

Mouth spear 8—9 µm, equal with labial diameter; aperture one-third of spear length. It is very characteristic for the spear that on its dorsal side, on the posterior end of aperture a tiny thorn is to be found; this is not always visible in a retracted position but quite conspicuous when the spear is extruded. Guiding ring simple, thin.

Oesophagus very long, 360—400 µm, 33—38% of entire length of body, enlarging suddenly far before the middle, in 32—36% of its length. Anterior part slim, surrounded from the nerve ring to its posterior end by a tissue formation ending proximally in three slender lobes. Cylindrus unusually long, 232—270 µm, 64—68% of entire length of oesophagus (measured from the head end), belondirid, strongly structured with vacuola-like elements but without a muscular sheath. Nuclei well recognizable. Dorsal nucleus very large and located unusually back, in 37—39% of the length of cylindrus or 94—116 µm from the beginning of the enlarged portion of the oesophagus. In connection with the dorsal nucleus another phenomenon is also very characteristic: just before the nucleus, on the dorsal contour of the cylindrus a distinct sinus can be observed. Subventral nuclei are in consequence of the heavy structurization of the muscular tissues not too conspicuous. Members of the first pair of subventral nuclei at about 2/3 cylindrus length, not levelling with one another, those of the second pair nearly at the same level, about one and a half cylindrus-width from oesophagus terminus. Cardia tongue-shaped, rounded. Prerectum 3—3.7, rectum 1.2—1.5 anal diameters long.

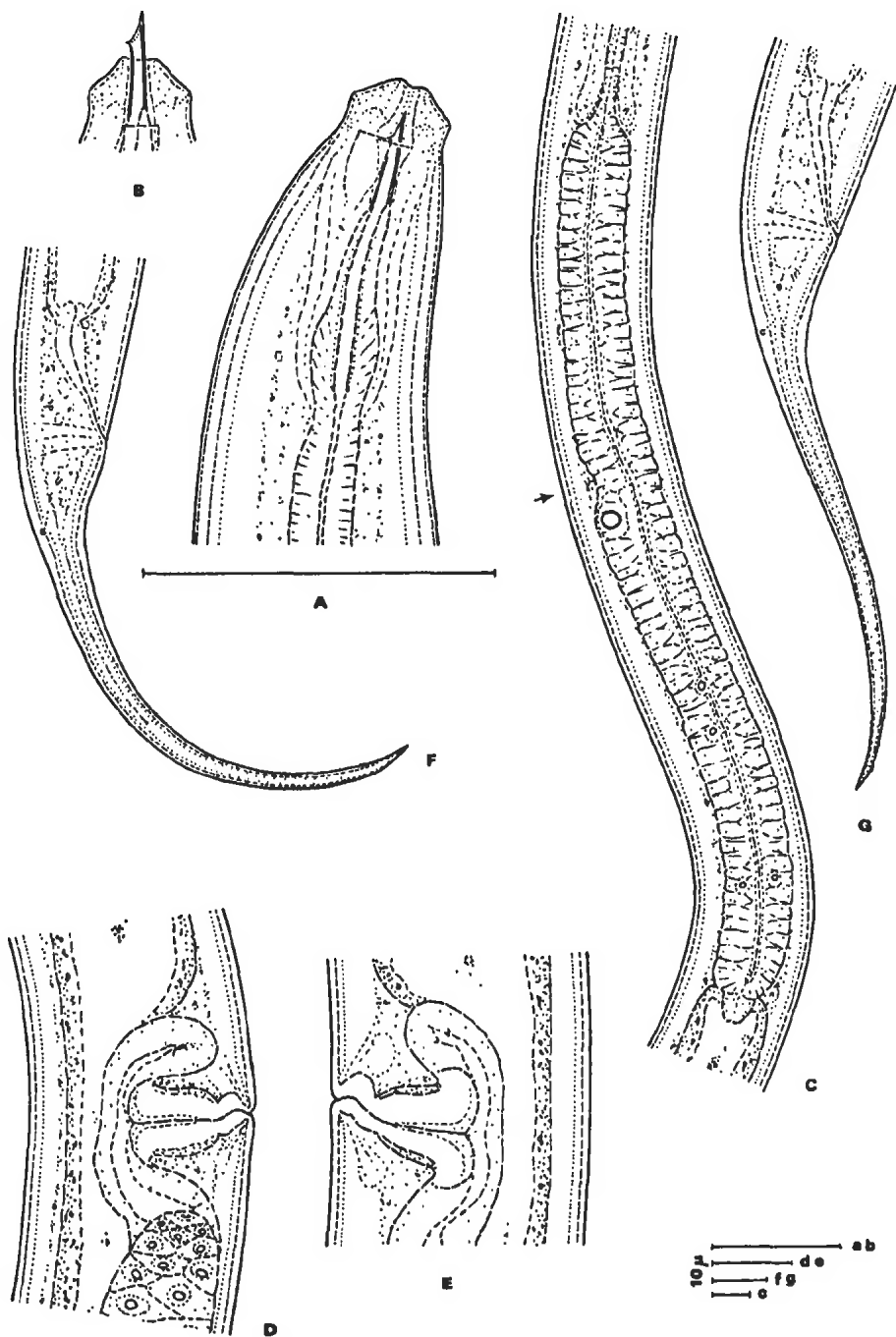


Fig. 4. *Hulqus papuanus* sp. n. A: anterior end, and body width at posterior end of oesophagus; B: labial region with extruded spear; C: the unusually long cylindrus with a dorsal sinus (arrow) at the large nucleus; D—E vulval regions; F—G: female tails

Female genital organ unpaired, opisthodelphic. Vulva a transverse slit, 25—85 μm , 1.3—2.5 body diameters posterior to oesophagus. Vagina 16—17 μm , as long as or somewhat longer than one half the body width, without sclerotized lips. Lumen of vagina showing an S-shape: first at right angles to body-axis, then oblique in a short part, after that straight again. A prevulval uterine sack present but very short, merely half a body-width long. Gonad 4.8—6.4 body widths long, 13—18% of total length of body. One egg at the same time: 50—55 x 18—20 μm , 1.6—1.9 body diameters long.

Distance between vulva and anus 4—6 times as long as tail. Tail 96—115 μm , 5—7 anal diameters long 9—11% of body length, filiform, mesodorylaimid with anterior conical and posterior elongate part; simply bent ventrad or first bent slightly ventrad then dorsad. Tip of tail conoid-pointed.

Male not found.

The genus *Hulqus* was proposed by SIDDIQI (1982) when he described the type and only species, *H. pengi* SIDDIQI, 1982 from Papua New Guinea, from soil around roots of *Coffea robusta*. (A nearer place was not named.) SIDDIQI assigned his genus to the family Discolaimidae SIDDIQI, 1969 but suggested a new subfamily, Hulquinae for it and for a related genus, *Mitoaxonchium* YEATES, 1973. As pointed out by him, *Mitoaxonchium* and *Hulqus* show a number of common characteristics, and are quite similar in much respect. They can, however, be easily separated by the fact that SIDDIQI's genus is monodelphic and the enlarged portion of oesophagus is not offset by a constriction.

In their recent book, JAIRAJPURI and AHMAD (1992) considered Hulquinae as valid but they transferred it to Qudsianematidae.

As for the taxonomic position of Hulquinae I am of a third opinion. I agree both with SIDDIQI, and JAIRAJPURI and AHMAD that *Mitoaxonchium* and *Hulqus* are close relatives and they have a number of characteristics — shape of head, length and shape of spear, amphids, long oesophagus, very long and heavily structurized cylindrus, unusual posterior position of dorsal nucleus, not sclerotized vulva, shape of tail, absence of males — which justify to unit them under a separate subfamily. I think, however, that they are closer to Belondiridae—Swangeriidae than to Qudsianematidae. A good part of the above mentioned features, viz. shape and structure of the labial region, shape of the amphids, the very long oesophagus — especially the remarkable length of the cylindrus — and the unsclerotized vagina, all are typic for belondirid nematodes. One thing weakens this supposition: the lack of a muscular sheath around the basal part of the oesophagus. YEATES though mentioned the presence of a sheath at his *Mitoaxonchium* species, but SIDDIQI, when examined the paratypes of *M. basalticum* YEATES, 1973 and further specimens from other localities, had observed no such sheath. Probably the strongly belondirid appearance of oesophagus deceived YEATES when he thought to see a sheath.

Summa summarum, the subfamily Hulquinae SIDDIQI, 1982 is here considered a unit of Belondiroidea, and because of the long tail to belong to Swangeriidae, with the comment that the absence of a cylindrus-sheath as well as the very back position of the dorsal nucleus do not fit completely to the picture of that family.

Hulqus papuanus sp. n. resembles *H. pengi* SIDDIQI, 1982, the only other species of the genus, there are, however, good differences between them. Thus, *papuanus* is characterized as follows: 1) the spear is longer (8—9 μm vs. 5—6.5 μm); 2) the head is wider (8—9 μm vs. 5—6 μm); 3) the oesophagus enlarges more anteriorly (32—36% vs. 37—42%); as a consequence the cylindrus is longer; 4) the dorsal

nucleus is located farther back (94—116 μm , in 37—39% vs. 65—80 μm , in 30—34%); 5) there is a distinct and constant sinus on the dorsal side of the cylindrus before the nucleus; 6) the prerectum is longer (3—3.7 vs. 1.5—2.5 anal diameters); 7) the vaginal lumen shows an S-figure; 8) the tail is shorter (96—115 μm , 5—7 anal body-widths, 9—11% of body length vs. 130—190 μm , 10—15 anal body-widths, 15—18% of body length); 9) the distance between the vulva and anus as compared to the tail length is larger (4.2—6 times vs. 1.9—2.7 times tail length).

Holotype: ♀ on the slide No. 12950. Paratypes: 9 ♀ and 2 juveniles.

Type locality: New Guinea, Wau, Mt. Kaindi, 2300 m above sea level, wet mosses from a fallen trunk in a tropic rain-forest, August, 1968; leg. J. BALOGH, and I. LOKSA.

It seems that the *Hulqus* species definitely are of New Guinean distribution, and the subfamily Hulquinae occurs in the region of Southeast Asia and Oceania.

Falcihasta monticola sp. n.

(Figs. 5 A—E and 6 A—D)

♀: $L=1.64\text{—}1.84$ mm; $a=42\text{—}49$; $b=7.4\text{—}8.1$; $c=4.6\text{—}5.0$; $V=25\text{—}28\%$; $c'=15\text{—}17$.

♂: $L=1.65\text{—}1.72$ mm; $a=49\text{—}52$; $b=6.6\text{—}8.1$; $c=4.8\text{—}5.4$; $c'=15\text{—}19$.

Body slender, in the mid-region 37—38 μm (♀) or 32—35 μm (♂) wide. Cuticle smooth, very thin, maximal 1 μm on mid-body, but strongly thickened on tail. It is very characteristic for this species and also for other members of the genus I have observed that the "normal" cuticle, in other words: the entire body, is covered with a very fine, transparent, film-like "outer cuticle" measuring similarly 1 μm in thickness or so. Subcuticular musculature thicker than in general, about 3 μm . Lip region 7.5—8.5 μm wide, hardly separated from neck region, distinctly asymmetrical, ventrad lower than dorsad. Papillae moderately developed, mouth opening somewhat shifted toward the ventral side. Body at proximal end of oesophagus 4—4.6 times as wide as head. Amphid pouches as wide as or somewhat wider than half a body width at that region.

Spear 6.5—7 μm , a little shorter than labial width, asymmetrical, ventrad shifted from the body axis, conspicuously bent dorsad on its tip, thicker than cuticle at the same level. Aperture less than one-third spear length, completely dorsal in position, supplied with a tiny thorn-like projection on its proximal end. Mouth cavity also asymmetrical; odontophore much longer than spear. Guiding ring thin.

Oesophagus rather short, 210—260 μm , only 1/7—1/8 of body length, slender in its anterior part, enlarged in 75—77% of its length. Cylindrus short, 55—61 μm , weakly muscular, enveloped by a thin muscular sheath showing some (5 or 6) spirals. Dorsal nucleus well visible, in 42—47% of cylindrus; one pair of subventral nuclei lying at the middle between the dorsal nucleus and the proximal end of oesophagus. Cardia elongate, tongue-like. Distance between oesophagus end and vulva approximately as long as oesophagus. Prerectum 1.5—2.2, rectum 1.2—1.3 anal body-widths long.

Vulva transverse, 230—235 μm or 6—6.2 body diameters from oesophago-intestinal junction. Vagina 22—23 μm , longer than half a body diameter, with non-

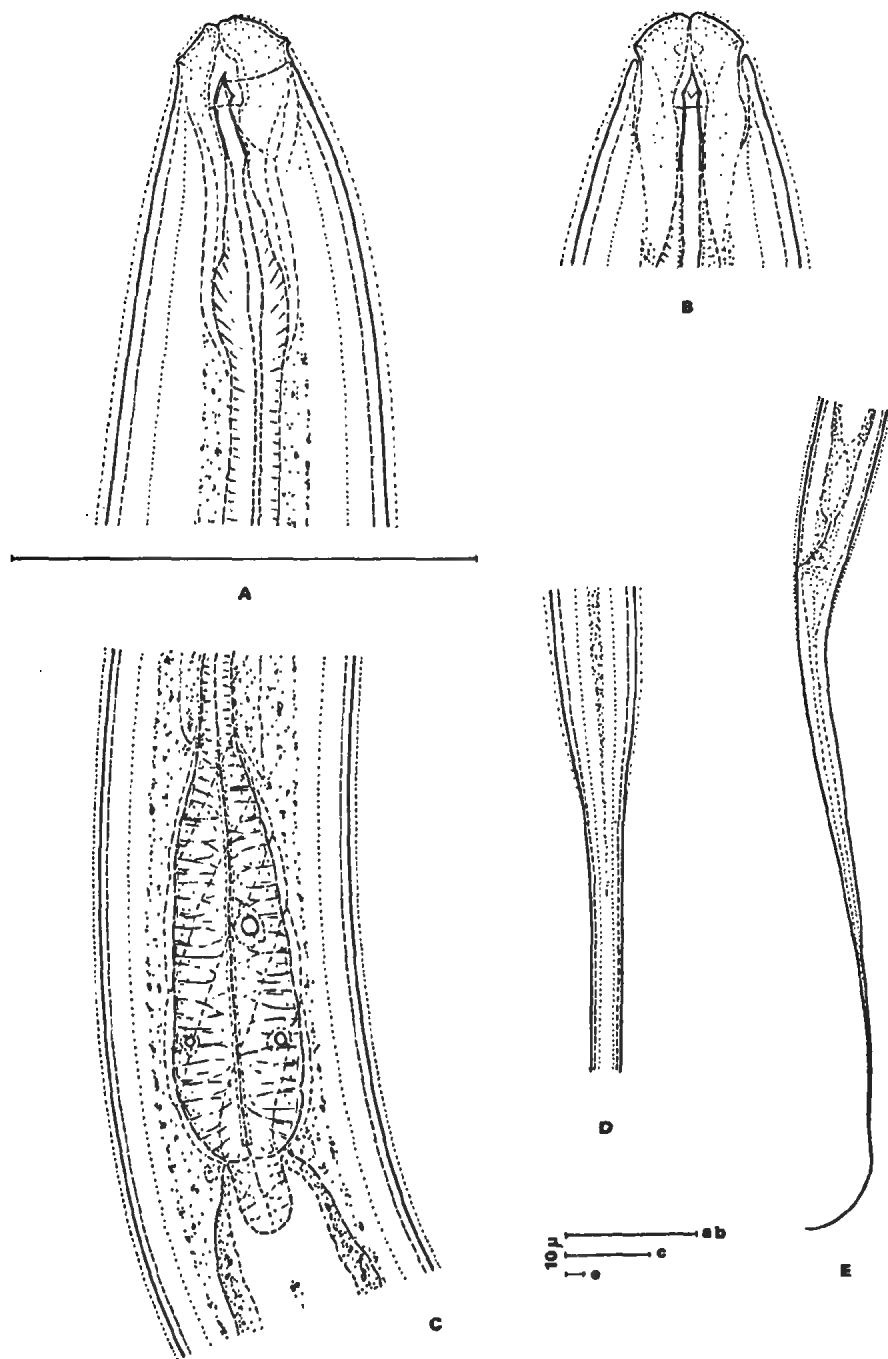


Fig. 5. *Falcihastha monticola* sp. n. A: anterior end, and body width at proximal end of oesophagus; B: anterior end from medial view; C: cylindrus and cardia; D: mid-region of tail showing a distinct narrowing; E: tail

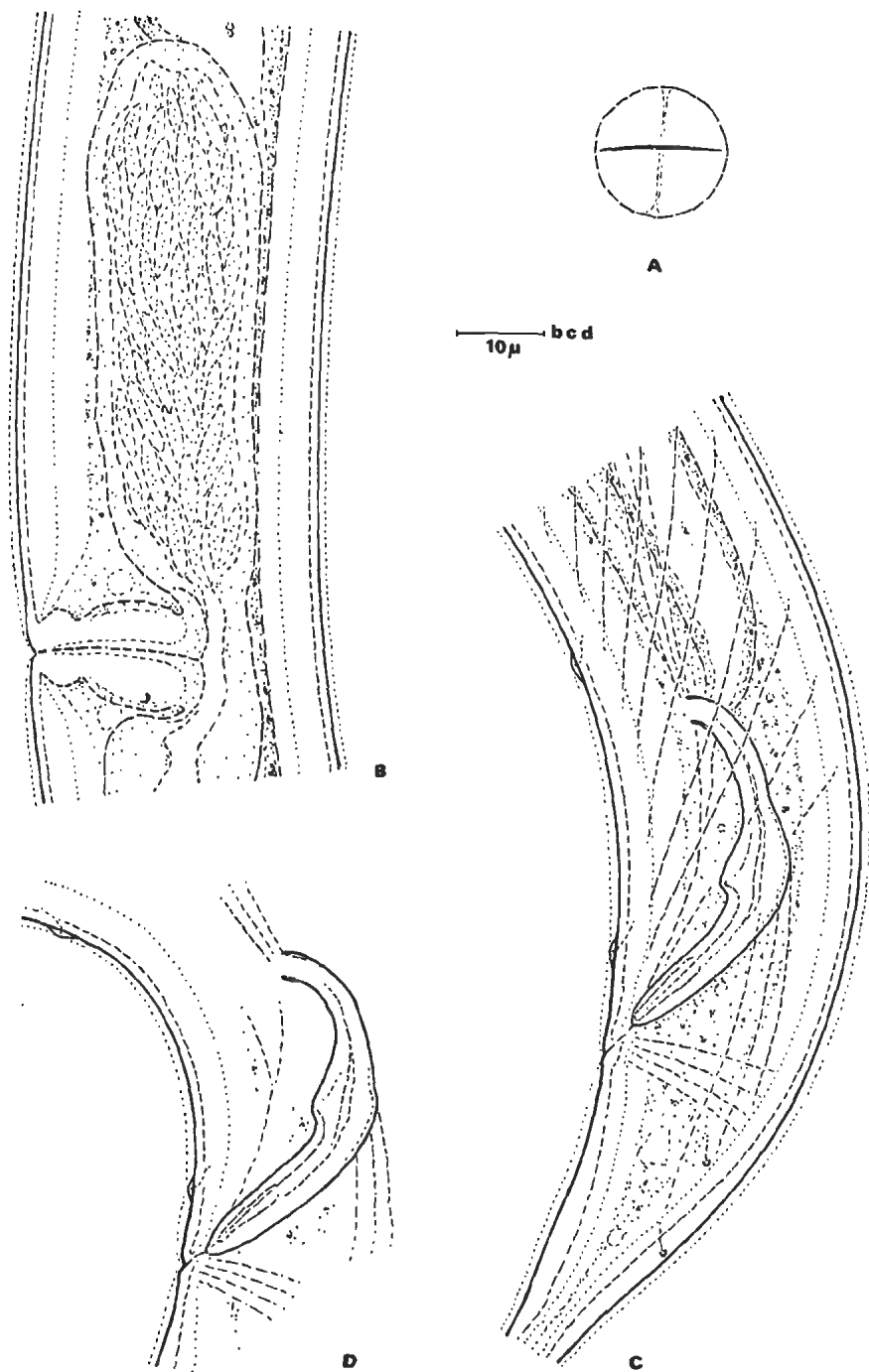


Fig. 6. *Falcihasta monticola* sp. n. A: vulva from frontal view; B: vulval region; C—D: cloacal regions of two males

sclerotized lips. Mono-opisthodelphic. Anterior uterine sack present, fairly large, 60—76 μm , 1.5—2 body-widths long, generally filled with spermatozoa. Posterior gonad 6.2—6.5 body diameters long or 13—15% of entire length of body. One egg at the same time, 98 x 24 μm , thrice of body width.

Distance vulva—anus 2.5—2.6 times as long as tail. Tail 330—400 μm , 15—17 times anal diameter, 20—21% of body length, filiform. It consists of an anterior shorter conical part and a very long "thread"; this thread suddenly narrowing on the middle and turn into a "whip-tong". Cuticle in anterior part of tail strongly thickened, 5—6 μm (only 1 μm in major part of body!).

Testes two, spermatozoa fusiform, 8—10 μm long, about 1/4 body diameter. Spicula dorylaimid in general but very slender; cylindrical and arcuate in its anterior part, then strongly thickened in the middle and ending in a dagger-like portion; 45—49 μm long. Lateral guiding pieces rather indistinct. Adcloacal pair of papillae farer from anal opening than usual. A single copulatory supplement, 50—55 μm from cloaca. Prerectum beginning anterior to spicula. Tail similar to that of female, its cuticle thickened however not so strongly. Two pairs of small sublateral caudal papillae present.

Falcihasta is a peculiar genus. It was proposed by CLARK when he described the type-species, *F. palustris* CLARK, 1964. In having an asymmetrical head, irregular, from the general dorylaimid type different spear, very short oesophagus-cylindrus and male supplements in very restricted number, *Falcihasta* is unique in Belondiroidea. CLARK found his species in the temperate zone of the Southern Hemisphere, in New Zealand, while YEATES recovered the second species, *F. tropica* YEATES, 1973 in the tropics of the same hemisphere, in the New Hebrides. Both species are very similar, and common in having paired female gonads. Practically an only difference can be stated between them: the presence (*palustris*) or absence (*tropica*) of bursa-like lateral expansions on the tails of both sexes.

The taxonomic situation of *Falcihasta* is not quite clear. There is no doubt, it belongs to the superfamily Belondiroidea. CLARK assigned it to the family Belondiridae. When SIDDIQI (1968) reviewed Belondiroidea, proposed a separate family, Falcihastidae, for this genus. ANDRÁSSY (1976) regarded SIDDIQI's group as a subfamily of Swangeriidae. JAIRAJPURI and AHMAD (1992) synonymized Falcihastidae with Belondiridae, and Falcihastinae with Swangeriinae (not quite correctly since Falcihastinae = Belondirinae would be regular).

Well, which are the nearest relatives of *Falcihasta*? There are some further genera in Belondiroidea that can show occasionally an asymmetrical lip region (certain species in *Oxydirus*, *Oxydiroides*, *Paraoxydirus*) but they differ essentially in general organization from our genus. Still, there is a genus showing an affinity to *Falcihasta*: *Paraqudsiella* SIDDIQI, 1982. Although the labial region is symmetrical in *Paraqudsiella*, this genus resembles *Falcihasta* in other respects very much, e.g. in shape of spear, very short cylindrus, opisthodelphic gonad (see the present new species), unsclerotized vagina and filiform tail with thickened cuticle.

Falcihasta monticola sp. n. can easily be differentiated from both known species, *palustris* and *tropica*, in having a mono-opisthodelphic female genital organ, differently shaped spicula and an other structure of tail.

Holotype: ♀ on the slide No. 13026. Paratypes: 4 ♀ 6, ♂ and 1 juvenile.

Type locality: New Guinea, Mt. Wilhelm, 4000 m altitude, humus and soil around roots from a primary rain-forest, August, 1968; leg. J. BALOGH and I. LOKSA.

Falcihasta silvicola sp. n.

(Figs. 7 A—D and 8 A—B)

♀: L=1.20—1.34 mm; a=36—38; b=6.9—7.1 c=4.6—4.8, V=27—28%; c'=14-15.

♂: L=1.13—1.20 mm; a=36—38; b=6.4—6.7 c=5.0—5.1; c'=11—12.

Body 33—36 (♀) or 31—32 (♂) µm wide in mid-region. Cuticle very thin, 1 µm or thinner, with a very fine outer pellicle (see the description of the previous species). Labial region 8.5—9 µm wide, hardly separated from body, asymmetrical, lower ventrad than dorsad. Mouth opening a little ventrally shifted. Body at proximal end of oesophagus 3.4—3.5 times as wide as head. Amphids elongate-caliciform, 1/2 the same width of body.

Spear 7 µm, shorter than labial diameter, slightly bent dorsad with sharply pointed distal tip and somewhat divergent proximal walls; ventrally shifted from body axis. Aperture about 1/4 of spear length, with a tiny thorn-like projection on its posterior end. Guiding ring simple. Mouth cavity asymmetrical.

Oesophagus 170—190 µm long, only 1/7 of entire length of body, slender in its anterior part, gradually expanding at 72—74%. Cylindrus short, 47—52 µm, moderately muscous. Dorsal nucleus posterior in position, at 52—55% of cylindrus length, well visible. Subventral nuclei inconspicuous. Cardia narrow, tongue-shaped. Prerectum 2.2—2.6, rectum 1.2—1.3 anal diameters long.

Vulva transverse, lying 148—184 µm posterior to oesophagus terminus. Vagina 16—18 µm, as long as half a body width, having non-sclerotized lips. Mono-opisthodelphic with an anterior uterine sac measuring 46—48 µm or 1.3—1.4 body-widths. Posterior gonad 7—8 body diameters long, 22—25% of entire length of body. One egg at the same time: 78—82 x 26—27 µm, 2.3—2.4 body diameters long.

Distance vulva—anus 2.4—2.5 times as long as tail. The latter 260—280 µm, 14—15 anal body-widths, 21—22% of body length, filiform, with very fine, thread-like posterior half. Cuticle of tail somewhat thickened at the anterior conical region but never as strongly as in the previous species.

Testes two, spermatozoa fusiform, 7—8 µm long. Spicula 33—35 µm long, dorylaimid with inconspicuous lateral pieces. A single preanal supplement located 46—49 µm from cloaca. Prerectum beginning before the supplement. Tail similar to that of female, 228—234 µm, 11—12 anal body-widths, 19—20% of body length.

Falcihasta silvicola sp. n. resembles the other monodelphic species, *F. monticola* sp. n., it can be, however, differentiated from that by the shorter and less slender body (1.20—1.34 vs. 1.64—1.84 mm; a=36—38 vs. 42—52), shorter and other shaped spicula (33—35 vs. 43—48 µm) and shape and cuticular thickness of tail. Besides, a number of finer differences can be found between these species, e.g. in shape of head, amphids, tail, in absolute length of tail, dorsal nucleus located more back, etc. (Compare the figures of both species: the corresponding portions of body are of the same magnification both in *monticola* and in *silvicola*.)

Holotype: ♀ on the slide No. 12986. Paratype: 3 ♀, 4 ♂.

Type locality: New Guinea, Wau, Eddie Creek, 300 m above sea level, humus and soil around tree roots in a rain-forest, September, 1968; leg. J. BALOGH, and I. LOKSA.

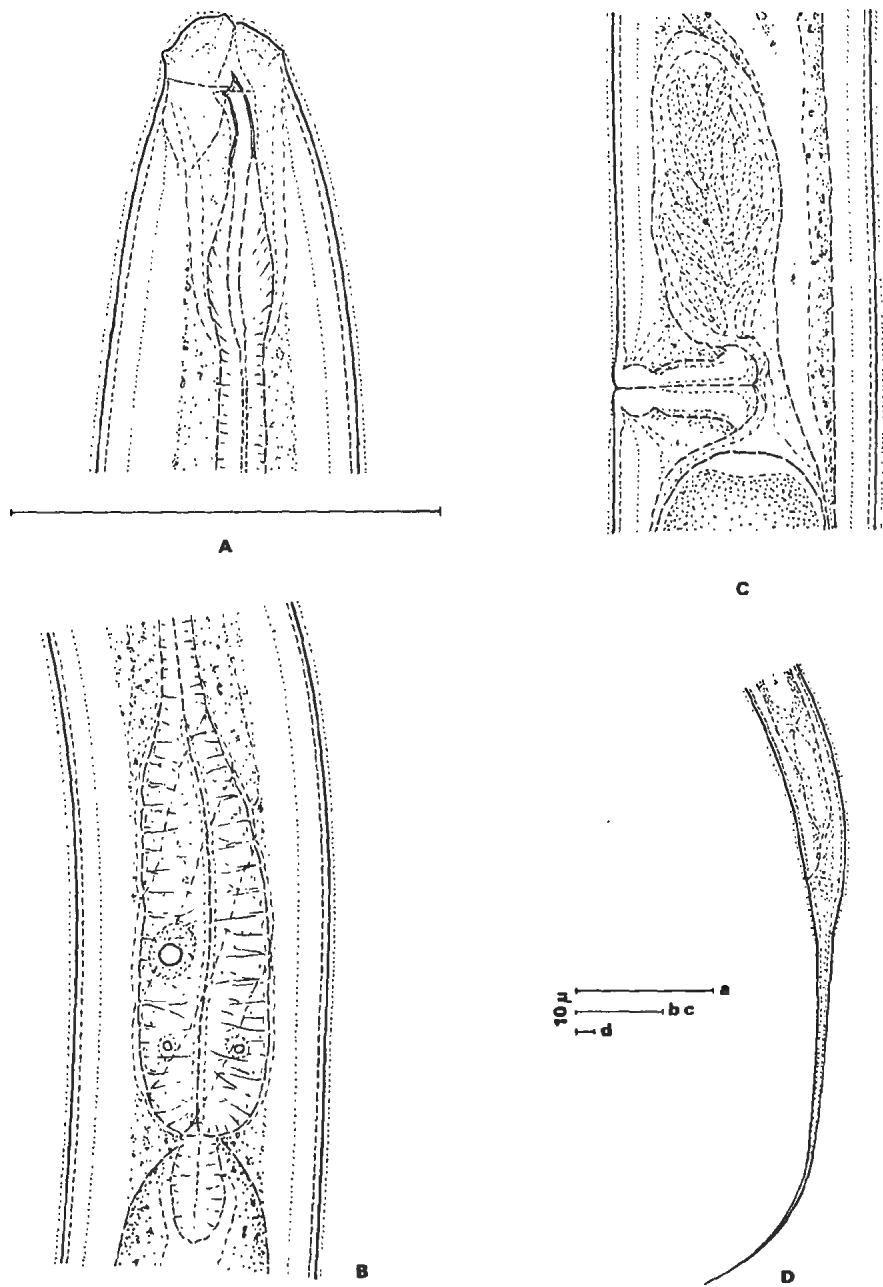


Fig. 7. *Falcihasta silvicola* sp. n. A: anterior region, and body width at proximal end of oesophagus; B: cylindrus; C: vulval region; D: female tail

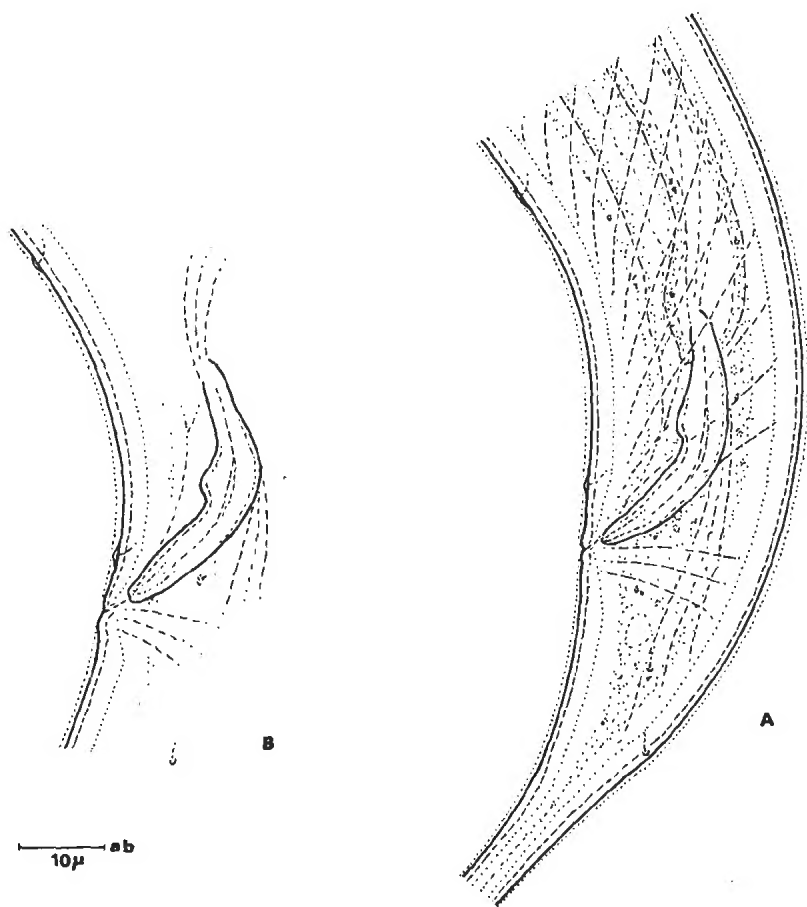


Fig. 8. *Falcihasta silvicola* sp. n. A—B: cloacal regions of two males

***Falcihasta tropica* YEATES, 1973**

(Fig. 9 A—E)

♀: L=1.09—1.12 mm; a=37—40; b=6.4—6.8 c=5.0—6.1, V=39—42%; c'=11—15.

♂: L=1.19 mm; a=44; b=7.2 c=5.4; c'=13.

Body slender, 28—29 μ m wide on mid-region. Cuticle very thin, hardly 1 μ m, smooth or very finely annulated on the anterior body region. A pellicle-like outer cuticle present. Head 8.5—7 μ m wide, asymmetrical, on the ventral side lower than on the dorsal side, hardly separated from the neck region. Labial papillae small; mouth opening somewhat shifted ventrad. Amphids very large, almost two-third body width wide. Body at posterior end of oesophagus 3.7—3.9 times as wide as head.

Spear 5 μ m, shorter than labial diameter, slightly S-shaped ventrad shifted from body axis, sharply pointed on its tip. Aperture about 1/3 of spear length, quite dorsal in position. Guiding ring thin.

Oesophagus 164—170 μm long, at 75—77% widened; anterior portion slender, cylindrus thick but weakly muscular, 37—40 μm long, enveloped by a thin sheath showing 5—6 spirals. Dorsal nucleus lying in 38—44% of cylindrus, large; other nuclei small, rather inconspicuous. Cardia cylindroid. Prerectum 2.5—3.4, rectum 1.5 anal body-widths long. Distance between posterior oesophagus end and vulva 1.6—1.8 times as long as oesophagus.

Vulva transverse, "open", 270—310 μm , 9—11 body diameters from oesophagus; vagina 16—19 μm , always longer than 1/2 body width, swollen, with not sclerotized lips. An amphidelphic species. Anterior gonad 4—5.6, posterior 3.3—5 body-widths long. Egg 49 x 17 μm , 1.7 body diameters long.

Distance vulva—anus 2—2.5 times as long as tail. Tail 180—240 μm , 11—15 anal widths long or 16—20% of body length, filiform, gradually tapering to the very fine terminus.

Testes paired; spermatozoa fusiform, 7—8 μm long or 26—30% of corresponding width of body. Spicula dorylaimid, 32 μm long in curvature. Lateral guiding pieces insignificant. Beside the adcloacal pair of papillae, two preanal copulatory supplements are present, located 30 and 44 μm from cloaca, respectively. Prerectum begins before the supplements. Tail 220 μm , 13 anal diameters long, 19% of body length, filiform, with 2—3 pairs of rather inconspicuous sublateral papillae.

YEATES described this species from the Aneityum Island of the New Hebrides. He found two populations, in an altitude of 410 and 745 m, respectively, which differed in some proportions (body length, absolute and relative length of oesophagus, length of spicula). The present animals well conform with YEATES's specimens in general morphology; only two insignificant differences can be mentioned: the vulva is located more posterior (39—42% vs. 32—37 or 33—36%) and the vagina is larger. I think however that my nematodes may be regarded as belonging to *tropica*. Also the number of copulatory supplements (2) corresponds to the observations of YEATES: he found 2 supplements at 19 males and 3 supplements at a single male only.

The present New Guinean animals differ from *Falcihasta palustris* CLARK, 1964, the other amphidelphic (and type-) species of the genus in possessing a shorter body (*palustris* 1.1—1.8 mm), larger amphids and a simple tail (without lateral expansions).

Locality: New Guinea, Mt. Wilhelm, 4000 m altitude, humus from roots of *Abrotinella papuana*, August, 1968; leg. J. BALOGH and I. LOKSA.

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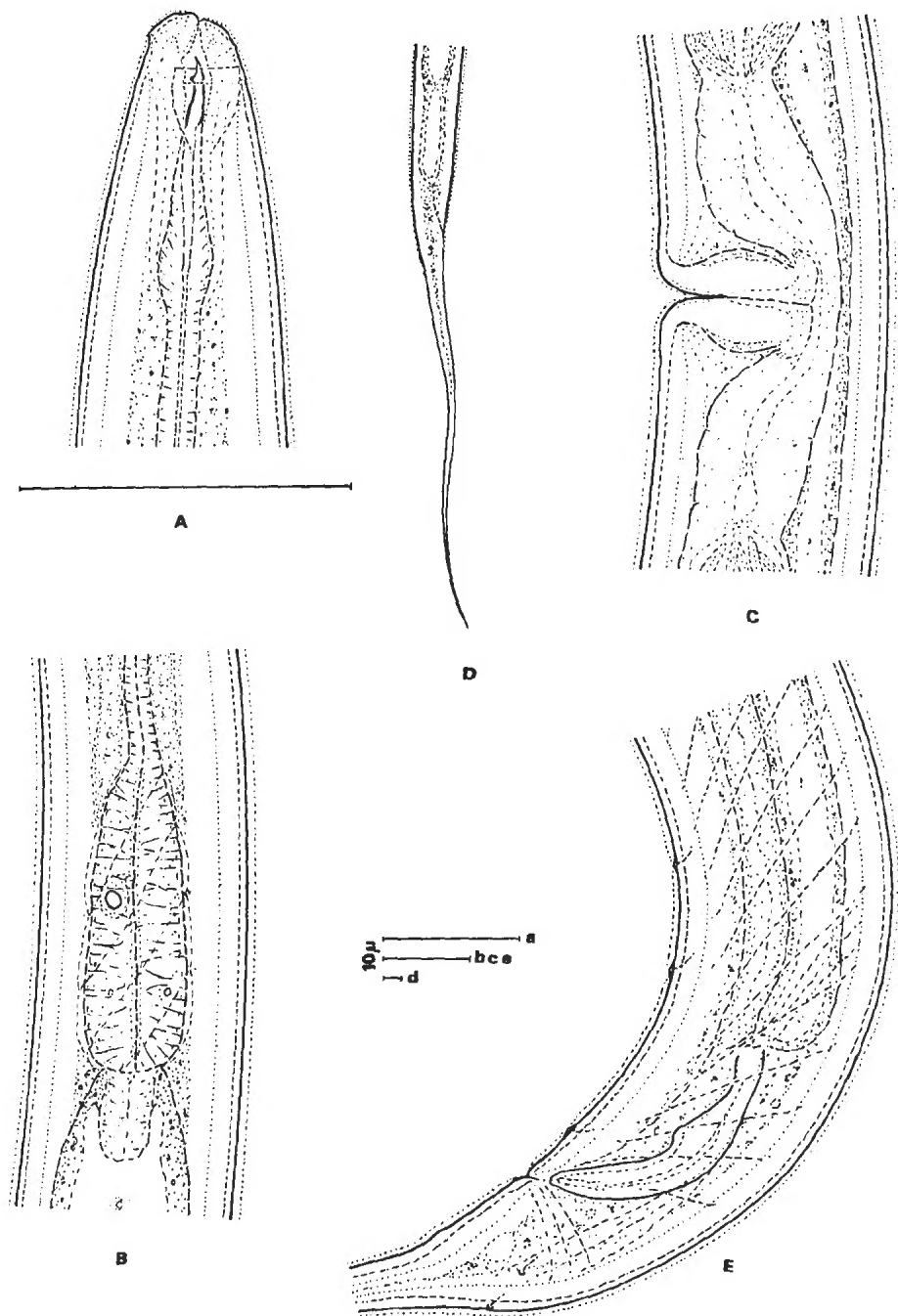


Fig. 9. *Falcihasta tropica* YEATES, 1973. A: anterior end, and body width at proximal end of oesophagus; B: cyliodrus; C: vulval region; D: female tail; E: cloacal region of male

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